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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,937	12/14/2004	Yutaka Murakami	P26356	8654
7055 7590 02/15/2008 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER MILLER, BRANDON J	
			ART UNIT	PAPER NUMBER
			2617	
			NOTIFICATION DATE	DELIVERY MODE
			02/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

## Office Action Summary

**Application No.**

10/516,937

**Applicant(s)**

MURAKAMI ET AL.

**Examiner**

Brandon J. Miller

**Art Unit**

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

***Disposition of Claims***

- I. Claims 16-31 remain pending in the application.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- II. Claims 20-22 and 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites “wherein third and fourth terminals are selected from transmission destination terminals including the first and second terminals” in lines 1-3. This limitation is unclear because it does not adequately describe how the first and second terminals can be included as “transmission destination terminals” without being described as such. This limitation renders the claim indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites “selecting the transmission frame from one of a transmission frame” in line 5. This limitation does not adequately describe how the transmission frame is selected because it is unclear what is meant by “one of a transmission frame”.

Claim 21 recites "selecting the transmission frame from one of a frame configuration" in line 9. This limitation does not adequately describe how the transmission frame is selected because it is unclear what is meant by "one of a frame configuration".

Claim 21 recites "a plurality of different modulated signals" in lines 7 and 11. This limitation is unclear because it does not adequately describe how the signals are modulated and/or how a plurality of signals can be "different" modulated.

Claim 21 recites a method comprising two "selecting" steps in lines 5-8 and 9-12 respectively. These steps are unclear because they do not adequately describe whether the "selecting" is applied to all the functions in each "selecting" step or just some of the functions. For example, in lines 9-12 it is unclear whether it is just the transmission frame in line 9 that is selected or whether both the transmission frame in line 9 and the frame configuration in lines 10-11 that are selected. The above limitations render the claim indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 contains limitations similar to those recited in claim 20 and are rejected under 35 U.S.C. 112, second paragraph given the same reasoning as above.

Claim 29 recites "transmitting a plurality of different modulated signals for the terminal on the first carrier group from respectively different antennas" in lines 11-12 and 15-16. This limitation does not adequately describe how the modulated signals are transmitted because it is unclear what is meant by "respectively" when referring to the different antennas. In addition, claim 29 contains limitations similar to those recited in claim 21 and are rejected under 35 U.S.C. 112, second paragraph given the same reasoning as above. These limitations render the

claim indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 contain limitations similar to those recited in claim 20 and are rejected under 35 U.S.C. 112, second paragraph given the same reasoning as above.

The following art rejection is based upon the best possible interpretation of the claim language in light of the rejection under 35 U.S.C. 112, second paragraph.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

III. Claims 16-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Hadad (US 7,224,741 B1).

Regarding claim 16 Hadad teaches a transmission method for transmitting an orthogonal frequency division multiplexing signal (see col. 4, lines 36-41 and col. 5, lines 6-8). Hadad teaches composing, on a per unit time basis, a plurality of carrier groups each composed of one or more subcarriers (see col. 5, lines 59-64). Hadad teaches assigning, on a per unit time basis, transmission data for a plurality of transmission destination terminals, to the plurality of carrier

groups; and transmitting the assigned transmission data (see col. 4, lines 31-42 & 45-48, carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)).

Regarding claim 17 Hadad teaches selecting, on a per unit time basis, one of a first frame configuration for transmitting the transmission data on each carrier group, using one modulated signal, and a second frame configuration for transmitting the transmission data on each carrier group using a plurality of modulated signals (see col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)).

Regarding claim 18 Hadad teaches wherein the transmission data is assigned based on channel state information from the transmission destination terminals (see col. 4, lines 36-38 and col. 6, lines 59-60).

Regarding claim 19 Hadad teaches a transmission method for transmitting an orthogonal frequency division multiplexing signal (see col. 4, lines 36-41 and col. 5, lines 6-8). Hadad teaches transmitting, at a first time, a modulated signal for a first terminal on a first carrier group and a modulated signal for a second terminal on a second carrier group (see col. 6, lines 61-67 and col. 7, lines 1-6, each subscriber indicates that there are multiple terminals and this sub carrier allocation will allow the modulated signals to be transmitted (see col. 4, lines col. 4, lines 31-42 & 45-48)). Hadad teaches transmitting, at a second time, a modulated signal for a third terminal on the first carrier group and a modulated signal for a fourth terminal on the second carrier group (see col. 7, lines 7-8, assigning several subscribers the same code indicates that at least some of the subscribers will have the same carrier groups and this sub carrier allocation will allow the modulated signals to be transmitted (see col. 4, lines col. 4, lines 31-42 & 45-48)).

Regarding claim 20 Hadad teaches wherein third and fourth terminals are selected from transmission destination terminals including the first and second terminals (see col. 7, lines 7-8, assigning several subscribers the same code indicates that at least some of the subscribers will have the same carrier groups and this sub carrier allocation will allow the modulated signals to be transmitted (see col. 4, lines col. 4, lines 31-42 & 45-48)).

Regarding claim 21 Hadad teaches a transmission method for transmitting an orthogonal frequency division multiplexing signal (see col. 4, lines 36-41 and col. 5, lines 6-8). Hadad teaches configuring a transmission frame including a first carrier group where a modulated signal for a first terminal is arranged and a second carrier group where a modulated signal for a second terminal is arranged (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)). Hadad teaches selecting the transmission frame for transmitting a modulated signal for the first terminal on the first carrier group (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame). Hadad teaches a transmission frame for transmitting a plurality of different modulated signals for the first terminal (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and different modulated signals interpreted to mean modulated transmission signals). Hadad teaches a frame configuration for selecting the transmission frame for transmitting a modulated signal for the second terminal on the second carrier group (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)). Hadad teaches a transmission frame for transmitting a plurality of different modulated signals for the

second terminal (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and different modulated signals interpreted to mean modulated transmission signal).

Regarding claim 22 Hadad teaches changing, the modulated signals arranged on the first and second carrier groups, from modulated signals for the first and second terminals to modulated signals for terminals selected from transmission destination terminals including the first and second terminals (see col. 7, lines 6-14, reassigning code reads on changing modulated signals associated with carrier groups).

Regarding claim 23 Hadad teaches a device as recited in claim 18 and is rejected given the same reasoning as above.

Regarding claim 24 Hadad a transmission apparatus comprising an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal (see col. 4, lines 26-30 & 36-41 and col. 5, lines 6-8, transmitter reads on signal generator). Hadad teaches a frame configuration determination section that determines a modulated signal to be assigned to a carrier of the orthogonal frequency division multiplexing signal (see col. 4, lines col. 4, lines 26-42 & 45-48, cellular transmitter/receiver configures transmission frame). Hadad teaches composing on a per unit time basis, a plurality of carrier groups each composed of one or more subcarriers (see col. 5, lines 59-64), and, assigns, on a per unit time basis, transmission data for a plurality of transmission destination terminals, to the plurality of composed carrier groups (see col. 4, lines 31-42 & 45-48, carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)).



Regarding claim 25 Hadad teaches a device as recited in claim 17 and is rejected given the same reasoning as above.

Regarding claim 26 Hadad teaches a device as recited in claim 18 and is rejected given the same reasoning as above.

Regarding claim 27 Hadad teaches a transmission apparatus comprising an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal (see col. 4, lines 26-30 & 36-41 and col. 5, lines 6-8, transmitter reads on signal generator). Hadad teaches a frame configuration determination section that determines a modulated signal to be assigned to a carrier of the orthogonal frequency division multiplexing signal (see col. 4, lines col. 4, lines 26-42 & 45-48, cellular transmitter/receiver configures transmission frame). Hadad teaches wherein, at a first time, assigning a modulated signal for a first terminal on a first carrier group and assigning a modulated signal for a second terminal on a second carrier group (see col. 6, lines 61-67 and col. 7, lines 1-6, each subscriber indicates that there are multiple terminals and this sub carrier allocation will allow the modulated signals to be transmitted (see col. 4, lines col. 4, lines 31-42 & 45-48)). Hadad teaches at a second time, assigning a modulated signal for a third terminal on the first carrier group and assigning a modulated signal for a fourth terminal on the second carrier group (see col. 7, lines 7-8, assigning several subscribers the same code indicates that at least some of the subscribers will have the same carrier groups).

Regarding claim 28 Hadad teaches a device as recited in claim 20 and is rejected given the same reasoning as above.

Regarding claim 29 Hadad a transmission apparatus comprising an orthogonal frequency division multiplexing signal generation section that generates an orthogonal frequency division multiplexing signal (see col. 4, lines 26-30 & 36-41 and col. 5, lines 6-8, transmitter reads on signal generator). Hadad teaches a frame configuration determination section that determines a modulated signal to be assigned to a carrier of the orthogonal frequency division multiplexing signal (see col. 4, lines col. 4, lines 26-42 & 45-48, cellular transmitter/receiver configures transmission frame). Hadad teaches a plurality of antennas (see col. 3, lines 25-30 and FIGs. 1 & 2, cellular wireless system contains a plurality of antennas). Hadad teaches a frame configuration for selecting a transmission frame for transmitting a modulated signal for the first terminal on the first carrier group included in the orthogonal frequency division multiplexing signal (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame). Hadad teaches a frame configuration for transmitting a plurality of different modulated signals for the first terminal on the first carrier group from respective of different antennas (see col. 4, lines col. 4, lines 31-42 & 45-48, different modulated signals interpreted to mean modulated transmission signal and carrier groups are arranged for each transmitter (see col. 6, lines 10-11)). Hadad teaches a frame configuration for selecting the transmission frame for transmitting a modulated signal for the second terminal on the second carrier group included in the orthogonal frequency division multiplexing signal (see col. 4, lines col. 4, lines 31-42 & 45-48, cellular transmitter/receiver configures transmission frame and carrier groups are arranged for each subsequent terminal (see col. 6, lines 10-11)). Hadad teaches a transmission frame for transmitting a plurality of different modulated signals for the second terminal on the second carrier group, from respectively different antennas (see col. 4,

lines col. 4, lines 31-42 & 45-48, modulated signals interpreted to mean modulated transmission signal and carrier groups are arranged for each transmitter (see col. 6, lines 10-11)).

Regarding claim 30 Hadad teaches a device as recited in claim 22 and is rejected given the same reasoning as above.

Regarding claim 31 Hadad teaches a device as recited in claim 18 and is rejected given the same reasoning as above.

#### ***Response to Arguments***

IV. Applicant's arguments with respect to claims 16-31 have been considered but are moot in view of the new ground(s) of rejection.

V. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

*Conclusion*

VI. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jung et al. Patent No.: US 6,643,333 B1 discloses a method and transmitting device for transmitting data symbols from subscriber signals via a radio interface of a mobile communications system.

Chini et al. Patent No.: US 7,020,095 B2 discloses a system and method for modulation of non-data bearing carriers in a multi-carrier modulation system.

Matsuoko et al. Pub. No.: US 2002/0085653 A1 discloses beam formation circuit and an apparatus and a method of receiving radio frequency signals making use of a smart antenna.

Ichihara et al. Patent No.: US 7,099,268 B2 discloses an orthogonal frequency division multiplex modem circuit.

Hashem et al. Patent No.: US 6,721,569 B1 discloses a dynamic sub-carrier assignment in OFDM systems.

Sano et al. Patent No.: US 7,164,696 B2 discloses a multi-carrier CDMA communication device, multi-carrier CDMA transmitting device, and multi-carrier CDMA receiving device.

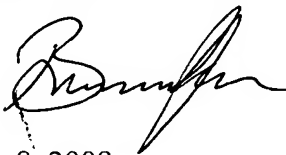
Hayashino et al. Patent No.: US 5,682,376 discloses a method of transmitting orthogonal frequency division multiplex signal, and transmitter and receiver employed thereof.

VII. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon J. Miller whose telephone number is 571-272-7869.

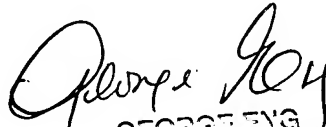
The examiner can normally be reached on Mon.-Fri. 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



February 8, 2008



GEORGE ENG  
SUPERVISORY PATENT EXAMINER